



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Natalie S. Kolber	Project Number J1416
Project Title Salicylate Induced Antibiotic Resistance to Ampicillin in Escherichia coli	
Abstract Objectives/Goals The objective of this experiment was to determine whether and what concentration of salicylate can induce phenotypic antibiotic resistance to ampicillin in E. Coli. Methods/Materials E. Coli (strain K12) were grown in liquid cultures of 1 mM, 3mM, 5mM, and 0 mM (control) of salicylic acid. They were then plated and tested for resistance against ampicillin using the Kirby-Bauer disk diffusion method. Results Bacteria grown in solutions of 3 mM and 5 mM developed equal levels of resistance, with zones of inhibition 29.69% smaller than the control. Bacteria grown in a solution of 1 mM showed zones of inhibition 19.92% smaller than the control. Conclusions/Discussion Salicylates are chemicals that are widely used in acne creams, toothpastes, and agriculture, as well as the active ingredient in aspirin. Most of us have no idea that this ubiquitous molecule renders bacteria even more dangerous to us. Many other areas of research that may stem from this study include the time frame of salicylate-induced resistance, inducing phenotypic resistance directly from commercial products, and whether culturing bacteria in a mixture of ampicillin and salicylate would induce phenotypic or genotypic resistance.	
Summary Statement This experiment is about phenotypic (nonheritable) resistance to ampicillin in E. Coli as a result of exposure to salicylate.	
Help Received Used lab equipment under supervision of Mr. Lay (science teacher) at GBK school science lab.	